this as truly the evidence of a well-trained, philosophic mind as the utterances of certain illiberal, one-sided philosophers who make a specialty of the writings of some schoolman rather than of the nature of their own mind, and who evince their ignorance and want of appreciation of science and scientific theories or working hypotheses, by dismissing them as "materialistic" and "atheistical." Scientific men are too apt to be dogmatic and censorious in dealing with transcendental and mystical philosophy, but we do not look for this spirit in the philosopher, whose range of vision takes in matter as well as mind and spirit.

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## RECENT LITERATURE.

REPORT OF THE STATE COMMISSIONERS OF FISHERIES OF PENNSYLVANIA.[1]—This is the most extended report yet made by the commissioners, covering 151 pages of text, and containing forty-nine engravings, of which forty-four represent species of fishes. Fifty-eight pages are devoted to the results of pisciculture, by the commissioners, and the remainder to a systematic account of the fishes of the State by Professor Cope. The distribution of fishes from the two hatching houses, the eastern and western, has been considerable, and has extended to all parts of the State. There have been sent from the Western house at Corry, Erie Co., *Salmo fontinalis*, *S. salar sebago*, and *S. quinnat*. From the Eastern house at Marietta, Lancaster Co., the same species have been sent, together with *Clupea sapidissima* (shad), *Micropterus salmoides* (black bass) and *Cyprinus carpio* (carp). The most extensive distributions have been of trout and black bass. An important feature of the report is a series of answers to questions propounded by the commissioners as to the condition of the streams in various parts of the State. These inquiries relate to the obstruction, pollution, etc., of the waters, and the answers throw much light on the subject. They should be continued in future years, for the destruction of the fish population of many fine streams will be accomplished, if this matter is not carefully supervised by the commissioners, and the needful legislation carried into effect.

The ichthyological portion of the report includes descriptions of one hundred and fifty-seven species, of which four have been introduced. The descriptions are arranged under the various systematic heads of genera, families, and orders, for which characters are given in accordance with the views of the author. Professor Cope has been a student of this subject for many years, and he has made a good many important discoveries in a field already pretty well occupied. Such may be considered the finding of the genera *Placopharynx*, *Ericymba*, and *Labidesthes*. So also the peculiar arrangement of the intestines in *Campostoma*, where they

[1] Harrisburg; Lane S. Hart, State Printer, 1881.

are wound in a long helix round the swim-bladder. The determination of the structure of the jaws and their functions in the peculiar genus *Exoglossum* was first made in Professor Cope's paper on the Cyprinidæ of Pennsylvania, published in 1861. Professor Cope thinks that additional species will be found in the Ohio tributaries, which now includes half the fresh water fish fauna of the State. The eastern limit of distribution of a number of species is pointed out, and the southern limit of others.

The report contains a great many typographical errors. This is too common in the documents published at our State capitals, and suggests a greater interest in the emoluments of their office than the quality of the work done by the State printers. We know of a case in an adjoining State, where the official whose report was thus mangled, reprinted part of it at his own expense, rather than present the work to the public eye. We were of the opinion at the time that the expense should have been borne by the State printer.

We hope the commissioners will persevere in their work until all our fresh waters furnish a permanent supply of good fish food for our rapidly increasing population.

STUDIES FROM THE BIOLOGICAL LABORATORY OF JOHNS HOPKINS UNIVERSITY.[1]—While this part contains valuable physiological papers by the editor, Prof. Martin, and by Drs. Councilman, Hartwell, and Sewall, we propose to notice here the purely zoölogical memoirs, which are of a high order of merit. In Dr. S. F. Clarke's paper on the early development of the Wolffian body in the common salamander *(Amblystoma punctatum)*, which is illustrated by three well drawn plates, the author states that this body arises from the outer layer of the mesoderm as a solid rod of cells, and is at first largest anteriorly; a split then occurs in the larger portion which begins at the posterior end of the smaller part and travels anteriorly, and at this time a lumen has appeared in the anterior end of the blastema; finally, the split reaches the anterior end thus dividing that portion into two ducts; the lumen is extending itself backward, a small rod of cells has been formed below the anterior end of the ventral duct, the dorsal and ventral ducts are united at one point, and a second opening into the body-cavity from the dorsal duct has been made. This method of development seems to be quite different from that in any allied forms in which the development has been worked out, and, adds Dr. Clarke, it is most like that of the Elasmobranchs.

A paper by Dr. C. Sihler, on the formation of dentine and of osseous tissue is followed by one by Prof. W. K. Brooks and E. B. Wilson on the first zoëa of Porcellana, illustrated with two

[1] *Johns Hopkins University, Baltimore.* Studies from the Biological Laboratory. Editor, H. NEWELL MARTIN; Associate Editor, W. K. BROOKS. Vol. II, No. 1. Published by N. Murray, Johns Hopkins University. June, 1881. 8vo, pp. 134. Subscription price for the vol., $5.00.